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ABSTRACT

This report describes the Maternal Infant Health Outreach Worker (MIHOW) program which operates in Appalachia and rural Western Tennessee. The program, which constitutes a partnership between community organizations and the Vanderbilt University Center for Health Services, trains local women to use home visitations to educate and support other women in matters related to prenatal care and infant development. An evaluation of the impact of the MIHOW project on prenatal health behavior, infant feeding, and quality of home environment compared client information to information on a comparison group and made use of interviews with clients in their homes. The evaluation showed mixed results concerning prenatal care and pregnancy outcomes, but unequivocal success in the postnatal phase. Monthly home visits made a difference in prenatal self-care and may have had an impact on prenatal care use, but had no apparent effect on the birthweights of infants. The results showed that a family support intervention using paraprofessional home visitors can improve the quality of the home environment of rural low-income children. (RJC)

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Promoting Maternal and Child Health In the Context of Rural Poverty

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PROMOTING MATERNAL AND CHILD HEALTH IN THE CONTEXT OF RURAL POVERTY

The MIHOW project was devised in light of the environment in which it operates. Four of the five MIHOW sites are in Appalachia, the fifth is in rural West Tennessee. These communities are similar to other impoverished rural areas in the United States and the Third World in that they suffer the longterm effects of regional underdevelopment.

Poverty is Devastating

In the six communities where MIHOW originated, baseline information collected in 1983 revealed that 59% of the families in the low income communities we surveyed lived on less than $500 per month. Thirteen percent were often without food, and another 31% were periodically without food.

Moving Beyond Health

The disadvantages faced by low income children extend well beyond issues of access to health care. Not only does a lack of resources deprive poor children of a fair start in life, but perhaps even more powerfully, failure in school and work life can be passed from generation to generation by family patterns of behavior, especially parenting behaviors. Parenting is not easy in communities where unemployment and underemployment have been constant for decades.

The Center for Health Services, which has sponsored the MIHOW project, utilizes an approach to community-based health interventions

derived from twenty years of field experience. Much of that experience has been in the area of rural clinic development. One lesson the Center has drawn is that the interrelatedness of health and socio-economic conditions makes it likely that an intervention in the area of health will be more successful when it is not isolated from other social and economic issues.

The MIHOW Model: An Active Network in Hard-Pressed Communities

The MIHOW program is a partnership between community organizations and the Vanderbilt University Center for Health Services. With university support in planning, training and evaluation, local women are trained to educate and support other women in matters related to prenatal care and infant development. The services are targeted for women whose children are at high risk for educational and developmental problems because of their mother's poverty, stress and geographical isolation. Although the program cannot eradicate the consequences of poverty in service-starved communities, it enables talented women to help other women make the most of limited resources and to encourage them in new child development practices.

MIHOWs and Natural Helpers

The foundation of the program is its staff. At each rural site a Maternal Infant Health Outreach Worker, called the MIHOW, was identified and hired by the sponsoring community organization. The MIHOW is a community leader who is also part of the natural helping network of rural low income women. She learns of high risk pregnant

women through her personal and professional contacts. The MIHOWs must be mature and independent women who are experienced advocates for other people. She brings knowledge of her community and some professional experience, but not necessarily any expertise in health or child development.

At each site, the MIHOW launched the project and provided services alone for about one year. During the second year of the project, the MIHOW recruited and trained assistants called "Natural Helpers" who gradually replaced the MIHOW as the main service provider.

The Natural Helpers were less experienced, skilled and educated than the MIHOWs when they joined the program. In many ways the Natural Helpers are more like the clients than the MIHOWs. In fact, a good number of the Natural Helpers first became involved with the project as successful clients. Natural Helpers are recruited and hired based on their personal characteristics. They need outgoing personalities and a commitment to helping women and families.

Client Identification

The distinguishing feature of the MIHOW outreach is that the home visitor makes a personal connection with each potential client in her own home. This peer to peer approach to reaching an isolated, disadvantaged woman is the special link to the medical care system that the MIHOW program offers.

The Home Visiting Program

Once a young woman joins the project, a MIHOW or Natural Helper home visitor calls on her at home throughout her pregnancy, continuing until the child's second birthday. The client receives one home visit per month during pregnancy and the child's first year of life. During the child's second year home visits decrease to every other month. Parents and children also become involved in group activities sponsored by the MIHOW project.

The MIHOW project is essentially a training program for community leaders in health. The core of our training is in home visiting skills. A great strength of using paraprofessionals as home visitors is the flexibility with which they can adopt different roles depending on the needs of their clients. The same home visitor will often report having a close mutual friendship with one client, acting like a substitute mother with another client and playing more of a professional or teaching role with a third. Much training time must be devoted to exploring the strengths and weaknesses of the different roles.

Program Participants

Table One presents the demographics for program participants. The mean age of those taking part in the MIHOW intervention program was 20.5 years at the birth of their MIHOW targeted children. Two-thirds of MIHOW mothers were white; the balance of the clients were black. Forty-three percent were married and living with spouse; the remainder were separated, divorced, or never married. The mean number of years of education they had completed was 10.3. The vast majority of the households in which the MIHOW families lived had monthly incomes well below the federal poverty line, with mean per capita monthly incomes of $124.

Table 1

INCOME

Mean Monthly Household Income: $443.71 (N=369)

Monthly Income				Percent of Clients
0	to	$ 250	127	34.4
$251	to	$ 500	103	22.3
$501	to	$ 750	75	28.7
$751	to	$1000	42	11.4
Over		$1000	22	6.0

Mean Per Capita Monthly Income: $124.91 (N=370)

Monthly Income				Percent of Clients
0	to	$ 250	328	88.6
$251	to	$ 500	39	10.5
$501	to	$ 750	3	0.8
Over		$ 750	0	0.0

EDUCATION

Mean highest grade attained by MIHOW mothers: 10.3 years (N=392)

Highest grade attained		Percent of Clients
9th grade or less	130	33.2
10th or 11th	131	33.4
12th	111	29.8
one or more years of college	14	3.6

AGE AT DELIVERY

Mean age of mother at delivery: 20.5 years (N=391)

Age		Percent of Clients
13-16	62	15.9
17-19	146	37.3
20-24	117	29.9
25-29	47	12.0
30-34	14	3.6
Over 34	5	1.3

Percent of Primparis Clients: 61.0%
Percent of MIHOW clients who are black: 33%
Mean household size before birth of MIHOW target child: 4.05

Impact Assessment Strategy

We followed two main strategies for evaluating the impact of the MIHOW project. First, we compared information about our clients with information on a comparison group drawn from county-level data provided by Vital Statistics in West Virginia and Tennessee and by the Kentucky Department of Prenatal Services. This gave us our best information with regard to pregnancy outcomes and prenatal care use. For our second evaluation strategy, we conducted interviews in the clients home when their children where about one and about two years old. As part of each interview, the Caldwell HOME Inventory was administered. In addition to the HOME, clients answered questions about pregnancy self-care and infant feeding practices. Since we were not able to track controls from the first to the second year and because attrition changed the make-up of the client group, each of the two interviews really represents a seperate study.

Prenatal Health Behavior and Outcomes

Kentucky MIHOW and matched control mothers-to-be on the average began prenatal care at approximately the same time in their pregnancies, that is between three and four months, $\underline{m}$ = 3.42 and 3.62 months, respectively.

MIHOW clients in Kentucky and Tennessee accumulated significantly more prenatal medical visits, $\underline{m}$ = 11.10, than did the matched control group, $\underline{m}$ = 8.99. This may reflect the concrete assistance and encouragement the program provided mothers in keeping prenatal appointments. No control group data were available for West Virginia.

Although the matched group comparison strategy does not provide an unshakeable foundation from which to draw inferences, it appears that the MIHOW program did not make a major difference in the onset of prenatal care for its clients or in the birthweight of clients' children. Many clients clearly entered the MIHOW program too late for the intervention to have an impact on either of these key variables. Further, the financial barriers to care could not always be quickly resolved. Finally, most clients received less than six home visits which now seems to be insufficient to make a significant difference on our key prenatal variables. Judging from the One and Two Year Interview data, the program appears to have stronger effects later in the intervention.

During the Two Year Interview, MIHOW and control mothers were asked about their consumption of vitamins, iron, tobacco and caffeine during pregnancy. A self-care index combining the four self-care variables was devised. Results of an analysis of variance of the self-care index showed a significant program effect.

Infant Feeding

Infant feeding is a priority area for the MIHOW intervention. Parents' beliefs about what constitutes appropriate feeding practices are sometimes deeply rooted and are not easily changed. The Two Year Interview provided data on breastfeeding and the introduction of solid foods.

The incidence of breastfeeding in the communities targeted by MIHOW is quite low as is indicated by the low incidence of

breastfeeding among control mothers. Only 22.5% among the Two Year Interview control group breastfed their babies as compared to the national average of 43%. One-third of the MIHOW Client mothers, 33.3%, breastfed their children. The difference between the groups approached significance.

Quality of the Home Environment

Table 2 shows the results of form the One and Two Year HOME. An analysis of variance yielded highly significant results for every HOME subscale with the exception of "Acceptance" and "Organization of the Environment" at one year. MIHOW clients rated significantly higher than control subjects on all six HOME subscales at two years. The mean HOME total score for the treatment group was significantly higher than the control group's mean total score at both one and two years of age.

Table 2

Means, Standard Deviations and ANOVA Results for the One Year and Two Year Administration of the Caldwell HOME Inventory

One Year Caldwell HOME

Subscale (MIHOW N/ Control N)	MIHOW Mean	MIHOW SD	Control Mean	Control SD	F-ratio	Sig.
Responsiveness (204/124)	9.95	1.49	9.14	2.00	17.56	.0001
Acceptance (204/124)	6.15	1.21	5.90	1.53	2.57	.1101
Organization (204/124)	4.94	1.08	4.95	1.10	.02	.9013
Play Materials (203/124)	6.92	1.93	6.44	1.85	4.86	.0283
Involvement (203/124)	4.23	1.62	3.44	1.67	17.47	.0001
Variety (204/124)	3.81	1.12	3.28	1.18	16.34	.0001
Total (203/124)	36.01	5.30	33.18	5.91	20.11	.0001

Two Year Caldwell HOME

Subscale (MIHOW N/ Control N)	MIHOW Mean	MIHOW SD	Control Mean	Control SD	F-ratio	Sig.
Responsiveness (105/105)	10.03	1.42	9.05	1.94	17.15	.0001
Acceptance (105/105)	6.02	1.48	5.28	1.62	12.03	.0006
Organization (105/105)	5.11	.84	4.74	1.13	7.36	.0072
Play Materials (105/105)	6.88	2.24	6.19	2.06	5.33	.0220
Involvement (105/105)	3.91	1.66	2.51	1.71	35.83	.0001
Variety (105/105)	4.11	1.07	3.58	1.24	10.72	.0012
Total (105/105)	36.19	5.89	31.35	5.96	34.98	.0001

Conclusion

The families served by the MIHOW project are struggling to raise children in a context of regional underdevelopment and generational poverty. The MIHOW project is modest in scale, yet targets highly stressed families in a resource-poor environment. The MIHOW intervention is effective to the extent that it builds on the strength of rural familes and the natural helping abilities of rural women.

Grassroots leaders, especially rural women, represent a great untapped asset in otherwise resource-starved communities. Aided by the MIHOW project's investment in staff training and organizational development, local women have been able to use the MIHOW project to build an organizational base for further efforts in support of low income rural families. Two of the original MIHOW sites developed have new community-based organizations focused on serving families. The MIHOW sites have attracted state, federal, and private funding to expand their outreach to and advocacy for families at risk. Each of the sites was able to independently institutionalize the original services after the initial demonstration phase was over.

Locally recruited paraprofessional staff members benefited directly from the MIHOW program. The training, support and organization provided to local staff members may be their first exposure to the power they possess as individual helping agents working together. This impact may be as important as the impact on the clients, because it is the beginning of the leadership development that is necessary for the long term resolution of the problems facing low income rural communities.

In assessing the impact on the families participating in the MIHOW project, the MIHOW project had mixed results with prenatal care use and pregnancy outcomes and unequivocal success in the postnatal phase. Monthly home visits made a difference in prenatal self-care and may have had an impact on prenatal care use, but were apparently not adequate to impact on the birthweights of infants. Whatever the impact of the prenatal visits on prenatal and pregnancy outcome variables, the prenatal visits did lay the groundwork for later program effects.

The MIHOW project clearly demonstrated that a family support intervention using paraprofessional home visitors can improve the quality of the home environment provided to rural low income children. MIHOW families scored significantly higher on the One Year and Two Year Caldwell HOME Inventory than did a well matched comparison group. It seems reasonable to expect that the improvement in home environment will benfit both MIHOW parents and their children. Many MIHOW mothers have learned that they can become more successful parents, actively involved in their childrens' development. MIHOW target children may well translate their enriched early childhood experience into greater success in learning and development as they grow older and enter school.

In sum, the MIHOW project has had an powerful and positive impact on the participating families, on the women providing the services, on the leaders managing the local programs, and on the local organizations sponsoring the intervention. In practice, it is impossible to separate these different levels of impact, because they are interdependent. The organizations, the leaders, the natural helpers and the families themselves are all part of a long term process of community development which represents the only viable long term solution to the problem of the developmental disadvantages faced by children growing up poor in underdeveloped communities.